

A REVISION OF THE SHORE-FLY GENERA *HOSTIS* CRESSON AND
PARATISSA COQUILLETT (DIPTERA: EPHYDRIDAE)

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Abstract.—The shore-fly genera *Hostis* Cresson and *Paratissa* Coquillett are revised. These genera, now placed in the tribe Psilopini, are sister groups to each other. *Hostis*, which is monotypic, occurs on maritime beaches of the Pacific and Indian oceans. *Acanthonotiphila scotti* Séguy is a junior synonym of *Hostis guamensis* Cresson. *Paratissa*, comprising four species, includes *P. neotropica*, which is newly described (type locality: Belize, Stann Creek District: Carrie Bow Cay); also, *P. coriacea* (Lamb), *P. semilutea* (Loew), and *P. pollinosa* (Williston). The latter three species had been considered to be conspecific but are here shown to be valid species.

Key Words: Diptera, Ephydridae, shore flies, *Hostis*, *Paratissa*, phylogeny

With three notable exceptions (*Hydrellia* Robineau-Desvoidy with 206 species, *Notiphila* Fallén with 147 species, and *Scatella* Robineau-Desvoidy with 141 species), no genera of shore flies presently include more than 100 species. Far more genera, to the contrary, are monotypic or have just a few species (nearly 45 genera, representing over one-third of all known shore-fly genera, have three or fewer species). Two genera in the latter category are *Hostis* Cresson and *Paratissa* Coquillett, the subjects of this revision. These two genera are also linked in more significant ways of which the most important from a phylogenetic standpoint is their relationship as sister groups in the tribe Psilopini (see discussion of character evidence below). They also occur exclusively on maritime beaches, usually associated with the strand line, throughout much of the tropical and subtropical regions of the world. An exception is the west coast of the Western Hemisphere where no species of these genera are known to occur.

The purpose of this paper is to present a

revision of these two genera. Species of both genera are being treated in faunal studies that I am conducting on shore flies of the Caribbean and the Republic of Seychelles. These faunal studies prompted this study, which is needed to ensure accurate determinations of the included species. Other objectives of this study are to further unravel the phylogenetic relationships of these taxa and to utilize characters from the male terminalia, which have never been described or illustrated previously.

Little is known about the natural history of either genus, especially their immature stages. Adults, and probably the eggs, larvae, and puparia, occur on maritime beaches, nearly always in association with debris at the strand line. Accumulated seaweed and other organic material at the high tide mark seem to be the preferred habitat, and at times the adults occur there in great abundance, frequently in association with members of the family Tethinidae.

The paucity of information and research on these genera makes their published his-

tory relatively simple. Thus, previous work on their systematics, especially phylogenetic studies, is relatively brief, straightforward, and is summarized in the following paragraphs.

Coquillett (1900) described *Paratissa* in the twilight of the 19th century and selected *Drosophila pollinosa* Williston as the type species. Until then, this species had been treated in the genus *Drosophila*, although in the original description, Williston (1896: 414) noted that this species was probably an ephydrid. Williston preferred describing *pollinosa* in *Drosophila*, however, because some of its characters would "... lead one to search for the species in this genus." Coquillett's precedent of considering this species as an ephydrid was followed by virtually all subsequent workers, although neither Coquillett nor any predecessor verified the identity of Williston's species by actual study of Williston's primary types. The specimens Williston studied were collected on St. Vincent by H. H. Smith while the latter was in the employ of the West Indian Committee, which was established in part to investigate the "Flora and Fauna of the West Indies" (Williston 1896: 253). In 1923, Sturtevant reported that the primary types of this species were apparently lost. With the exception of Sturtevant and Wheeler (1954), who reviewed *Paratissa* as part of a synoptic study of North American Ephydridae, no substantive paper was published on this genus between 1923 and 1965. Wirth (1965: 740), in the most recent catalog of North American shore flies, listed *D. pollinosa* as a junior synonym of *Cacoxenus semiluteus* Loew, a species first described in the family Drosophilidae and also based on specimens from the Caribbean (Cuba). Wirth studied many of Loew's primary types at the Museum of Comparative Zoology (Cambridge, Massachusetts) and noted, evidently, that Loew's species is an ephydrid and further, that it is very similar externally to, and is probably conspecific with, *D. pollinosa*. Some years later, Mathis (1977) suggested

that *Paratissa* is related to a few genera in the tribe Psilopini, and Cogan (1980: 658) listed one additional junior synonym of *P. semilutea*, *Acanthonotiphila coriacea* Lamb (1912: 316), the first species of this group to be recognized as an ephydrid when it was initially described. Lamb described a separate genus for his species, however. Cogan, who had ready access to Lamb's primary types, was correct in listing *Acanthonotiphila* as a junior synonym of *Paratissa*, even though the former was described from specimens collected on the Seychelles, several thousands of kilometers from the Caribbean. In the same paper, Cogan also listed *Acanthonotiphila scotti* Ségué (1955), which was described from specimens collected on Tromélin, as a congener but with status as a valid species. These are the primary workers and papers that have dealt with the systematics of *Paratissa*. A few papers reported the occurrence of *P. pollinosa* on the Hawaiian Islands, although in each case the species was misidentified (Adachi 1952, Hardy 1952, as *Hostis guamensis* Cresson; Tenorio 1980, as *P. semilutea*) and of *P. pollinosa* from islands of the Pitcairn Group and Hawaii (Mathis 1989a, b).

Hostis has a more abbreviated history than *Paratissa*. Cresson (1945) described *Hostis* as a monotypic genus with *H. guamensis* as its type species. Cogan and Wirth (1977) listed the genus and species in their catalog of Oriental shore flies, Mathis (1977) suggested that *Hostis* is closely related to *Paratissa*, and more recently Mathis (1989a) reported the occurrence of the genus on several islands of Oceania and on beaches of Australia and the Seychelles (Mahé). Aside from these listings, the genus and species have not appeared in the literature except as a misidentified species of *Paratissa* (Adachi 1952, Hardy 1952).

Methods.—The descriptive terminology, with the exceptions noted in Mathis (1986), follows that published in the *Manual of Nearctic Diptera* (McAlpine 1981). The descriptions of species are composite, not

based solely on the holotypes. Two venational ratios are used commonly in the descriptions and are defined here (all ratios are averages of three specimens):

- 1. Costal Vein Ratio: the straight line distance between the apices of R_{2+3} and R_{4+5} /distance between the apices of R_1 and R_{2+3} .
- 2. M Vein Ratio: the straight line distance along M between crossvein dm-cu and r-m/distance apicad of crossvein dm-cu.

The phylogenetic analysis was performed with the assistance of Hennig86 (copyrighted), a computerized algorithm that produces cladograms on the basis of parsimony. Before performing the analysis, the character data were arranged in transformation series and then polarized primarily using outgroup procedures.

Terminology for structures of the male terminalia is provided directly on the first illustration of these structures (Figs. 14–18, *Hostis guamensis*). It is not repeated for comparable illustrations of the remaining species.

Most specimens for this study are in the National Museum of Natural History, and deposition for these, unless part of divided series, is not indicated in the text. Numerous others were borrowed, particularly type specimens of species described previously. The institutions from which these were borrowed and the acronyms used in the text are as follows:

BMNH The Natural History Museum, formerly the British Museum (Natural History), London, England (Brian Pitkin)

BBM Bernice P. Bishop Museum, Honolulu, Hawaii (N. L. Evenhuis)

CNC Canadian National Collection, Ottawa, Canada (J. R. Vockeroth)

MCZ Museum of Comparative Zoology, Harvard, University, Cam-

bridge, Massachusetts (David Furth)

MNHN Muséum National d'Histoire Naturelle, Paris, France (Loïc Matile)

TAU Tel Aviv University, Tel Aviv, Israel (Amnon Freidberg)

USNM National Museum of Natural History, formerly the United States National Museum, Smithsonian Institution, Washington, D.C.

SYSTEMATICS

Before proceeding with the descriptive treatment of *Paratissa* and *Hostis*, a few remarks are needed to explain the tribal assignment and phylogenetic relationships of these two genera and their included species within the tribe Psilopini. Most authors (Cresson 1945, Sturtevant and Wheeler 1954, Wirth 1965, 1968, Cogan 1980, Cogan and Wirth 1977) assigned *Paratissa* and *Hostis* to the tribe Discocerini Cresson. With recharacterization of that tribe on the basis of synapomorphies and its establishment as a monophyletic lineage (Mathis 1977, Mathis and Zuyin 1989), *Paratissa* and related genera were excluded and placed in Psilopini (Mathis 1977, 1989a). Psilopini was recently divided (Zatwarnicki 1992) into two tribes, with *Paratissa* and related genera being placed in the tribe Discomyzini. Within Discomyzini, *Paratissa* and *Hostis* are apparently related to genera that (1) have one to five setulae (usually 3–4) inserted on vein R_{2+3} basad of crossvein r-m and (2) have well-developed pseudopostocellar setae (sometimes inserted within the ocellar triangle but usually behind and with orientation variable). Frequently there is also a moderately to well-developed supra-alar seta, a character that is probably a symplesiomorphy, however. Other genera, in addition to *Paratissa* and *Hostis*, that are included in this group are: *Actocetor* Becker, *Clanoneurum* Becker, *Clasiopella* Hendel, *Discomyza* Meigen, *Eremomusca* Mathis,

sometimes curved toward apex, that are inserted on a distinct ridge along the apical $\frac{1}{4}$ to $\frac{1}{3}$ of posteroventral surface.

8. Coloration of legs: 0) dark colored, blackish brown to black, essentially concolorous with pleural areas or abdomen; 1) legs pale, much lighter than coloration of pleural area or abdomen.

9. Presence of intrafrontal setae: 0) usually lacking, as in *Hostis*; 1) present, as in species of *Paratissa*; 1 pair, inserted anterior of ocellar setae.

10. Coloration of maxillary palpus: 0) yellow, as in *Paratissa*; 1) brown, as in *Hostis*.

11. Shape of postgonite: 0) short, only slightly longer than wide, as in *Hostis*; 1) a single long process, as in *Paratissa coriacea*; 2) postgonite with 2 processes, an anterior one that is long, slender, and curved medioposteriorly, and a posterior one that is short and finger-like.

12. Shape of the surstylus: 0) roughly rectangular; 1) roughly triangular and with short prongs or processes.

13. Shape of aedeagus: 0) gradually tapered on apical half, relatively bluntly rounded from a dorsal view; 1) apical half a very narrow, parallel sided process from a dorsal view.

Paratissa and *Hostis* may be distinguished from each other by differences in characters 3, 9, 10, and 11. These characters are also synapomorphies that establish the monophyly of *Paratissa* (characters 3, 9, and 11) and *Hostis* (character 10).

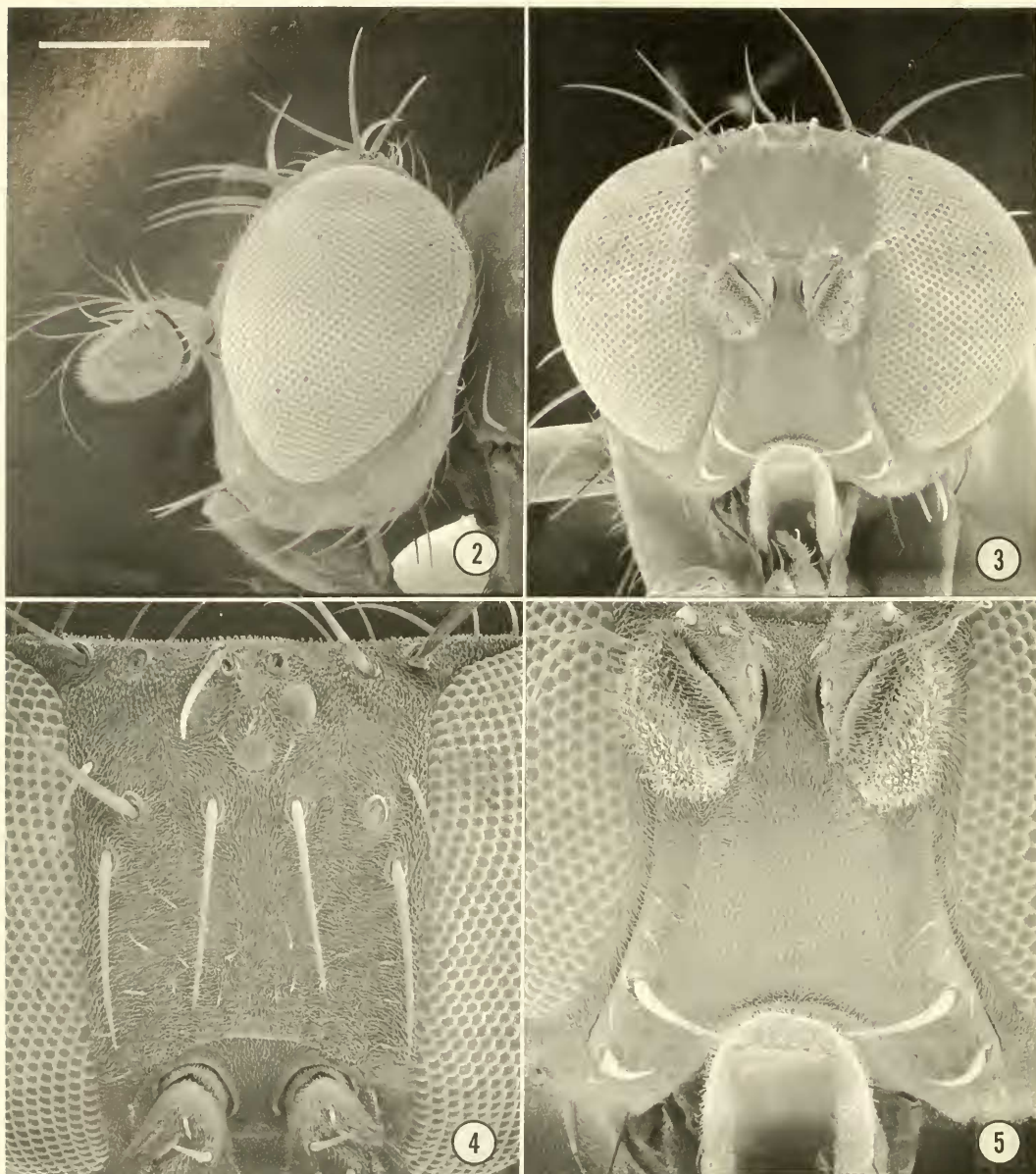
Although the relationships among the four species of *Paratissa* are not fully resolved (there is one trichotomy), the characters considered in this study, all morphological and primarily from the male terminalia, indicate the following relationships (Fig. 1). The basal lineage and sister group to the remaining species of the genus comprise a single species, *P. coriacea*. This species is most similar to the outgroup, *Hostis guamensis*, especially the dark colored legs (character 8) and shape of the surstylus (character 12) and aedeagus (character 13).

The surstylus is roughly rectangular, as in *H. guamensis*. Furthermore, the postgonite (character 11) of *P. coriacea*, although long and slender, does not bear a posterior, shorter prong, as in the other three species (*P. neotropica*, *P. pollinosa*, and *P. semilutea*). The other three species, all from the Western Hemisphere and a few islands in the Pacific, have a surstylus (character 12) that is more or less triangular with distinct prongs, and the gonite is two pronged, with the anterior prong much longer (its basal portion setulose and the apical portion nearly parallel sided and curved medially and then posteriorly). The posterior gonial process is shorter, straight, and finger-like. In addition, the aedeagus (character 13) from a dorsal view has the apical half very narrow and essentially parallel sided.

Genus *Hostis* Cresson

Hostis Cresson, 1945: 64. Type species: *Hostis guamensis* Cresson, 1945, by original designation.—Cogan and Wirth, 1977: 327 [Oriental catalog].—Mathis, 1989a: 6434 [Australasian/oceanian catalog].

Diagnosis.—Specimens of *Hostis* are similar to those of *Paratissa* and related genera but are distinguished by the following combination of characters: *Head*. Fronto-orbital setae 3 (anterior seta proclinate, 2nd reclinate, 3rd proclinate); intrafrontal setae lacking; dorsal arisal hairs 3–5 (if a 5th is present it is greatly reduced), usually 4; pseudopostocellar setae proclinate and only slightly divergent; facial setae 2, both well developed, ventral seta slightly smaller, both inserted toward ventrolateral corner of face and relatively close together, distance between about equal to that between posterior ocelli. Palpus brown. *Thorax*. Supra-alar seta 1, only moderately well developed, shorter than postalar seta; prescutellar acrostichal setae well separated; wing uniformly hyaline or very lightly infumate; vein R_{2+3} basad of crossvein r-m bearing 3–4 black setulae on dorsal surface; alula normally developed. *Abdomen*. 5th tergite bearing 4–6 erect setae



Figs. 2-5. Scanning electron micrographs of *Hostis guamensis* (scale length in parenthesis; bar scale for all photographs = Fig. 2). 2, Head, lateral view (0.27 mm). 3, Same, anterior view (0.27 mm). 4, Frons, anterodorsal view (150 μ m). 5, Face, anterior view (136 μ m).

along posterior margin on each side; 2nd sternite of male with a membranous circular area on anterior $\frac{1}{3}$. Male terminalia as follows: surstylus more or less rectangular; gonite divided, pregonite small, situated between base of hypandrium and postgonite; postgonite only slightly longer than wide,

length about equal to that of cercus and not with a second, more posterior process.

Hostis guamensis Cresson
Figs. 2-19

Hostis guamensis Cresson, 1945: 64.—Cogan and Wirth, 1977: 327 [Oriental cat-

alog].—Mathis, 1989a: 643 [Australasian/oceanian catalog].

Acanthonotiphila scotti Séguy, 1955: 11.

NEW SYNONYM.

Paratissa scotti.—Cogan, 1980: 658 [generic combination].

Description.—Small to moderately small shore flies, body length 1.75 to 2.80 mm.

Head (Figs. 2–8): Frons (Figs. 3–4) mostly gray, with some brownish coloration laterad of lateral ocelli near vertex, and lower fronto-orbits silvery gray; 2 proclinate fronto-orbital setae, posterior seta smaller; reclinate seta well developed, inserted medial to proclinate setae and at level between proclinate setae; ocellar setae inserted laterad and in front of anterior ocellus; pseudopostocellar setae proclinate, at most very slightly divergent. Antenna (Fig. 6) with scape and pedicel yellow; flagellomere 1 mostly yellow but darkened apically; arista with 4, occasionally 5 dorsal rays. Face (Figs. 3, 5) gray, slightly lighter than frons; facial shape nearly flat, with very shallow, rounded vertical carina, ventral margin emarginate; facial setae 2, these inserted on ventral $\frac{1}{3}$ of face and close together, distance between about equal to that between posterior ocelli, ventral seta slightly smaller; clypeus black with moderately densely microtomentose; palpus brown.

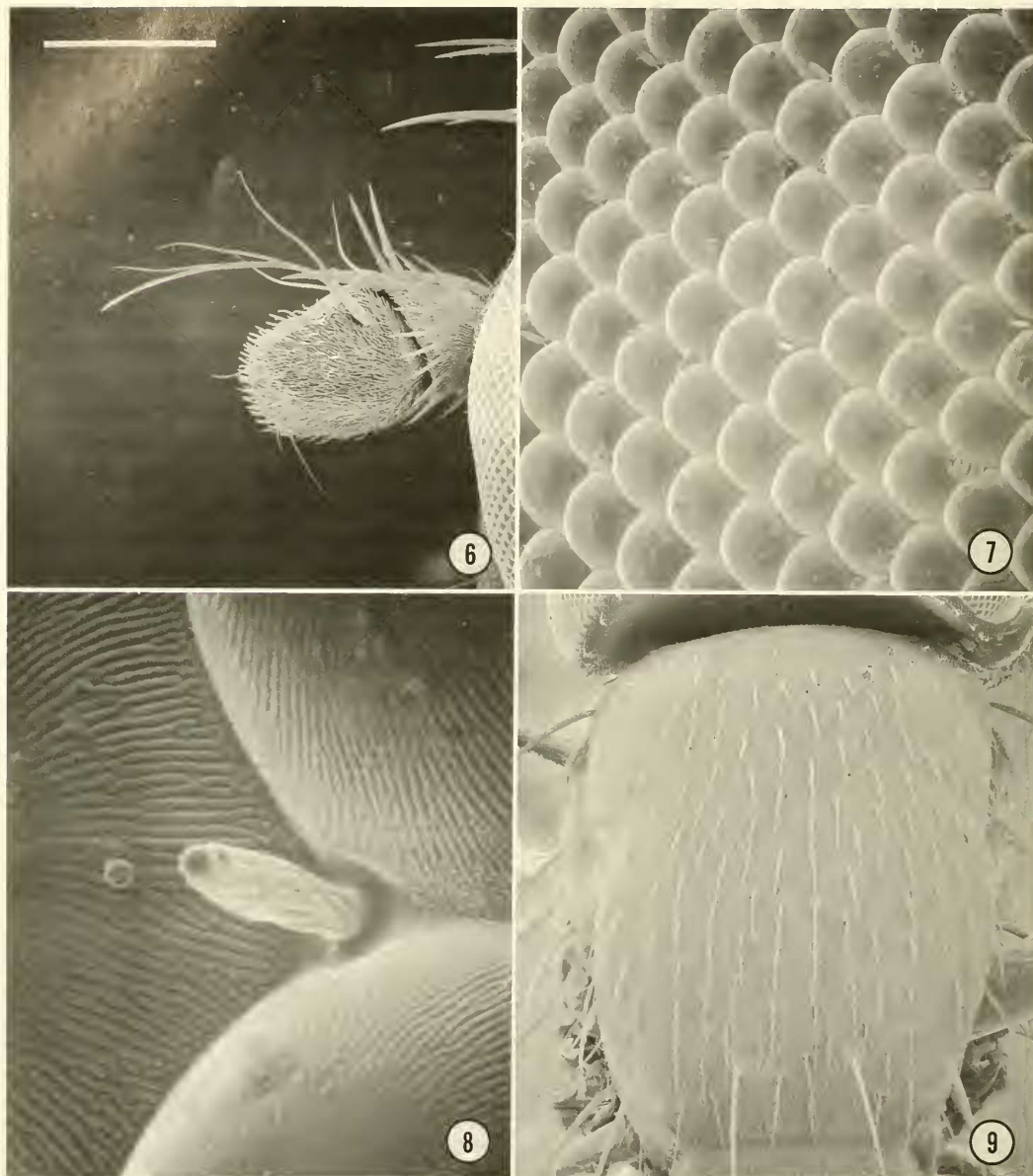
Thorax (Figs. 9–12): Bicolored, mesonotum (Figs. 9–10) densely microtomentose, gray, pleural area blackish brown. Wing mostly hyaline or very slightly infumate; costal vein ratio 0.75; M vein ratio 0.78. Legs generally dark colored, blackish brown to black, concolorous with pleural coloration, tarsi of middle and hind legs extensively yellowish; middle femur with row of 6–8 closely set setae on a raised, arched ridge along posteroventral surface.

Abdomen (Figs. 13–18): First sternite bare, wider than long; 2nd sternite with an unsclerotized circular area on anterior $\frac{1}{3}$; 3rd and 4th sternites very slightly and gradually enlarged posteriorly, posterior margin

rounded, setulae larger laterally and on posterior $\frac{1}{3}$; 5th sternite distinctly but gradually becoming wider posteriorly, posterior margin truncate to slightly concave. Male terminalia (Figs. 14–18) as follows: epandrium (Figs. 14–15), in lateral view, enlarged ventrally, broadly rounded, in posterior view, widest at level of dorsal margin of cercus; cercus (Figs. 14–15) well sclerotized, roughly bacilliform, pointed dorsomedially; surstylus (Figs. 14–17), in posterior view, with median margin slightly concave, setulose, laterally rounded and bare, connected with opposite surstylus by partially sclerotized ventral margin of cercal area that has a narrow and short gap at middle, in lateral view as a subrectangular process, ventral margin rounded; gonite divided, pregonite much smaller, between base of hypandrium and postgonite, with a ventrally directed short process that bears 1–2 setulae; postgonite (Figs. 15–16) as long as cercus, wider basally, bearing numerous small setulae, especially on anterior half, joined with postgonite on opposite side with an arched bridge above aedeagus; aedeagus (Figs. 16, 18), in lateral view, boot shaped, in posterodorsal view, narrowly triangular; aedeagal apodeme (Fig. 16) triangular in lateral view, with a short process anterodorsally; hypandrium (Figs. 15–16) a broad, concave plate.

Type material.—The holotype female of *Hostis guamensis* is labeled “Guam Sumay RGOakley IX-26-1938 [date handwritten]/China Clipper Ports AlamedaCal.Hon. Midway [handwritten]/Guam No 1327 [number handwritten]/Lot No3818297/1265 ICM/Hostis guamensis Cresson HOLOTYPE [handwritten, black submargin]/recovered from ANSP by CWS [Curtis W. Sabrosky] Dec 1951 [handwritten]/TypeNo 70453 USNM [red, number handwritten].” The holotype is double mounted (pointed), is in good condition, and is deposited in the USNM (70453).

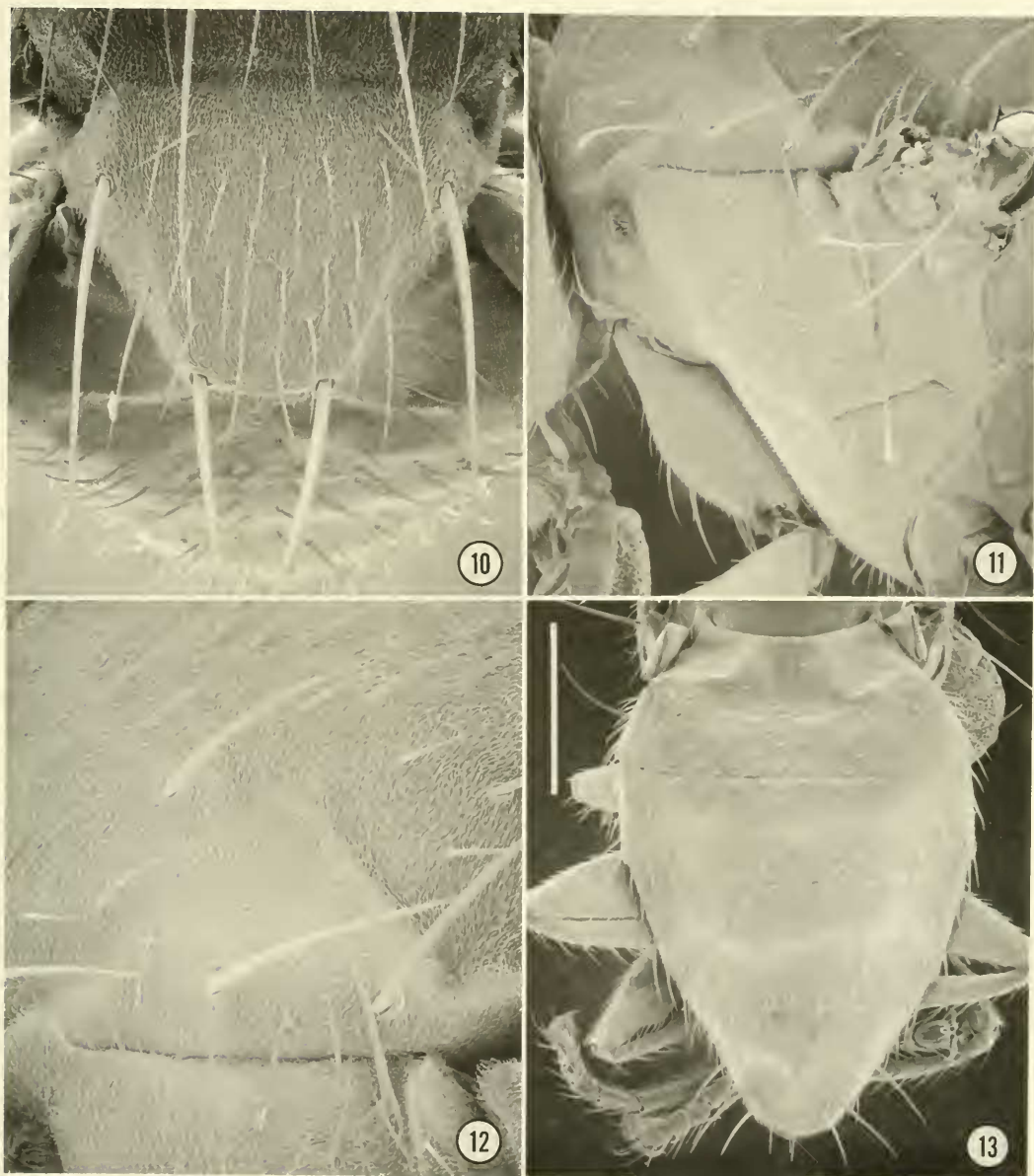
The holotype female of *Acanthonotiphila scotti* is labeled “Île Tromélin xi[Nov].[19]53 (R.P.) [handwritten]/INSTITUT SCIENI-



Figs. 6–9. Scanning electron micrographs of *Hostis guamensis* (scale length in parenthesis; bar scale for all photographs = Fig. 6). 6, Antenna, lateral view (150 μ m). 7, Eye, ommatidia with occasional setulae, lateral view (30 μ m). 8, Same, enlargement of setula, lateral view (3.0 μ m). 9, Scutum, dorsal view (0.27 mm).

FIQUE MADAGASCAR [light blue]/TYPE [red]/*Acanthonotiphila* Scotti ♀ TYPE n.sp. 54 E.Séguy vid [handwritten except for “E.Séguy vid”].” The holotype is double mounted (pin in a rectangular block of plastic foam), is in good condition, and is deposited in the MNHN.

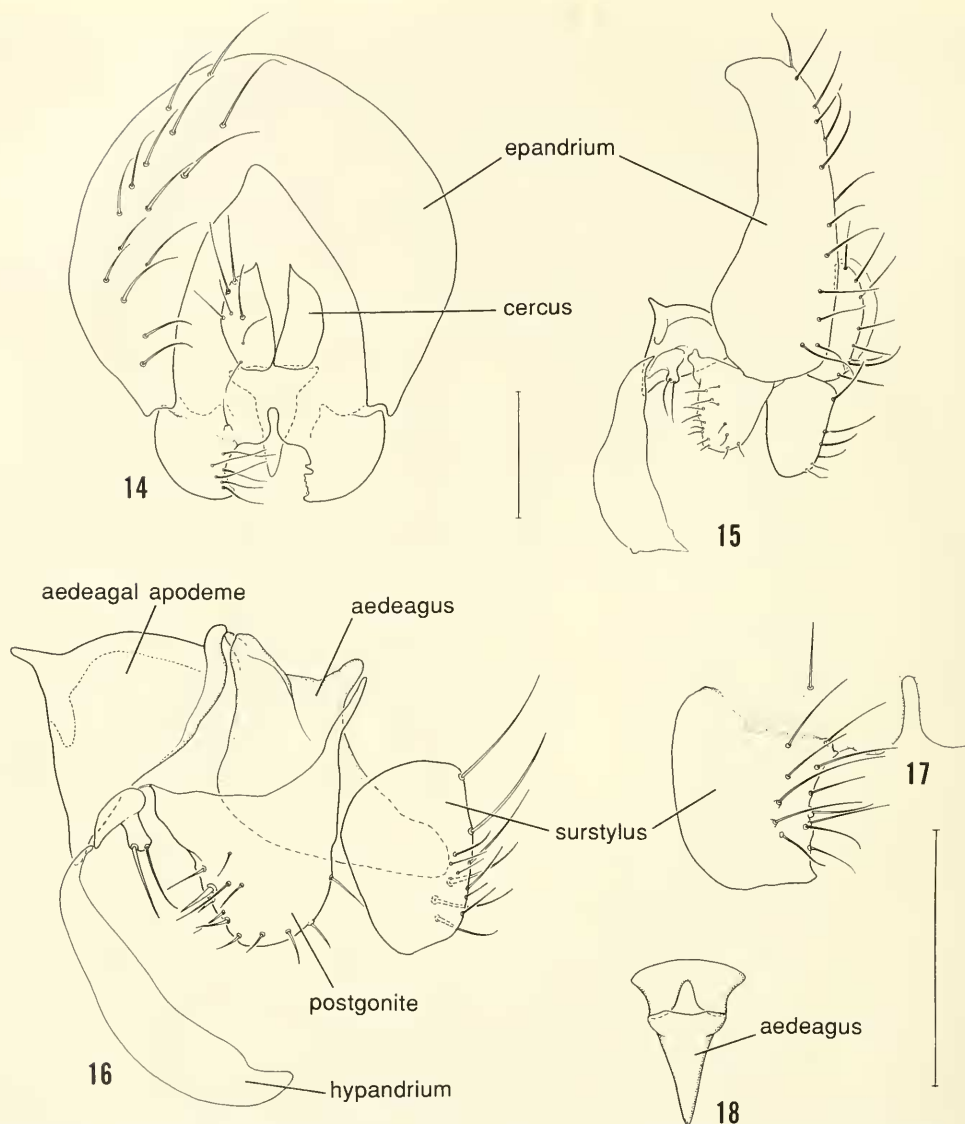
Other specimens examined.—Afrotropical. *MADAGASCAR*. Antseranana: Nosy Tanikely, 6 Apr 1991, A. Freidberg, F. Kaplan (8 ♂, 4 ♀; TAU, USNM). *COSMOLEDO*. Manai Island: Station, 26 Mar 1986, W. N. Mathis (1 ♀). Australasian. *AUSTRALIA*. Queensland: Cairns, Ellis Beach,



Figs. 10–13. Scanning electron micrographs of *Hostis guamensis* (scale length in parenthesis; bar scale for all photographs = Fig. 13). 10, Scutellum, dorsal view (176 μm). 11, Pleural area, lateral view (250 μm). 12, Notopleuron, lateral view (120 μm). 13, Abdomen, dorsal view (0.38 mm).

28 Apr 1957, W. W. Wirth (1 ♀). OCEANIAN. FIJI. Taveuni, Feb 1968, J. C. Hitchcock (1 ♀). FEDERATED STATES OF MICRONESIA. Kapingamarangi Atoll: Hare Islet, 3 Aug 1946, H. K. Townes (1 ♀). FRENCH POLYNESIA. Society Islands: Tahiti, Bain Loti, Apr 1961, J. N. Belkin (1 ♂). GUAM.

Sumay, R. G. Oakley, 26 Sep 1938 (1 ♀); (at light) 2 Oct 1938, A. Abarge (1 ♀). HAWAII. Oahu: Honolulu (on planes from the south), 1944 (1 ♂, 6 ♀). Lanikai (on rocks at beach), 29 Dec 1945, W. W. Wirth (1 ♀). LINE ISLANDS. Palmyra Atoll: Palmyra, Feb 1948, N. L. H. Krauss (1 ♂). MAR-



Figs. 14–18. Male terminalia of *Hostis guamensis*. 14, Epandrium, cerci, and surstylus, posterior view. 15, Epandrium, cerci, surstylus, postgonite, and hypandrium, lateral view. 16, Surstylus, postgonite, aedeagal apodeme, aedeagus, and hypandrium, lateral view. 17, Surstylus, posterior view. 18, Aedeagus, dorsal view. Scales equal 0.1 mm.

SHALL ISLANDS. Eniwetok Atoll: Parry Island, Aug–Sep 1955, M. R. Wheeler (1 ♀). Jaluit Atoll: Jabor Island, 24–30 Apr 1958, J. L. Gressitt (1 ♂, 2 ♀). Kwajalein Atoll, 19 Feb 1958, N. L. H. Krauss (1 ♂); Kwajalein Island, 16 Aug 1946, H. K. Townes (1 ♀). Majuro Atoll: Uliga Island, Aug–Sept 1955, M. R. Wheeler (1 ♀). Rongelap Atoll: Ke-

belle Island, Aug–Sep 1955, M. R. Wheeler (1 ♂, 1 ♀). **PALAU.** Koror Island, 16 May 1957, C. W. Sabrosky (1 ♀). Ngerkabesand Island (mangrove), 24 Apr 1957, C. W. Sabrosky (1 ♂). Ngurukdabel Island, Ngaremediu (beach), 24 Apr 1957, C. W. Sabrosky (2 ♂). **SAMOA (American).** Alega, Tutuila, 22 Feb 1954, C. Hoyt (1 ♀). Ori-

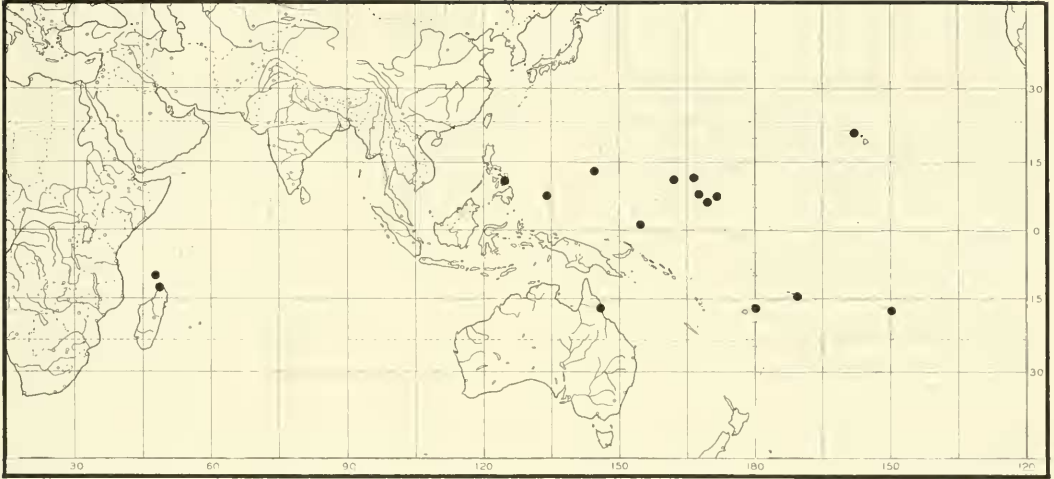


Fig. 19. Distribution map for *Hostis guamensis*.

ental. *PHILIPPINES*. Calicoan Island (ex. Mallow tree), F. F. Bibby (1 ♂).

Distribution (Fig. 19).—Old World. Afrotropical: Aldabra (Cosmoledo), Madagascar, Seychelles, Tromélin. Australasian/oceanian: Australia (QLD). Federated States of Micronesia, Fiji, French Polynesia (Society Islands), Guam, Hawaiian Islands, Line Islands, Marshall Islands, Samoa. Oriental: Philippines.

Remarks.—This species ranges widely throughout the western Pacific and Indian oceans. Because of its widespread distribution, I was initially skeptical that all specimens were conspecific. Careful examination of external characters and those of the male terminalia indicates a single species that is distinguished by the characters noted in the generic diagnosis and illustrations.

Genus *Paratissa* Coquillett

Paratissa Coquillett, 1900: 36. Type species: *Drosophila pollinosa* Williston, 1896, by original designation.—Williston, 1908: 307 [key to genus].—Sturtevant, 1923: 10 [discussion, types apparently lost, identity uncertain].—Sturtevant and Wheeler, 1954: 251 [review, discussion, placed in Discocerini near *Discocerina*].—Wirth,

1965: 740 [nearctic catalog]; 1968: 9 [neotropical catalog].—Mathis, 1977: 943–944 [discussion, placed in Psilopini near *Hostis*]; 1989a: 643 [Australasian/oceanian catalog].

Acanthonotiphila Lamb, 1912: 316. Type species: *Acanthonotiphila coriacea* Lamb, 1912, by original designation.—Cogan, 1980: 658 [synonymy with *Paratissa*].

Diagnosis.—Species of *Paratissa* are similar to those of *Hostis* and related genera but are distinguished by the following combination of characters: *Head*. Fronto-orbital setae (Fig. 30) 4 (anterior 2 proclinate, 3rd laterocline, 4th laterorecline); intrafrontal setae 1 pair, inserted anterior of ocellar setae; dorsal arisal hairs 3–4; pseudopostocellar setae proclinate and only slightly divergent; facial setae 2, both inserted ventrally toward lateral corner and relatively close together. *Thorax*. Supra-alar seta 1, moderately well developed, but not as long as postalar seta; prescutellar acrostichal setae well separated; wing uniformly hyaline or lightly infumate; vein R_{2+3} basad of crossvein r-m bearing 3–4 black setulae on dorsal surface; alula normally developed; middle femur of male with a row of closely set setae on a ridge along the apical portion

of the posteroventral surface. *Abdomen*. 2nd sternite of male subdivided, anterior portion a narrow, transverse band, ventral portion more or less rectangular, longer than wide, and with anterior margin deeply concave; male terminalia as follows: postgonite long and slender and apical portion curved medioposteriorly; aedeagal apodeme slender, more lunate than distinctly angulate at a right angle; hypandrium longer than wide.

Discussion.—The species of *Paratissa* are very similar externally, and so far as I can determine, those from the Western Hemisphere lack any distinguishing characters except for structures of the male terminalia. Probably for this reason most previous workers confused these species, which were usually thought to comprise just one very widespread species, *P. semilutea*. Characters of the male terminalia indicate otherwise, however, and these characters are the primary bases for recognition of the various species. Only characters of the male terminalia have been found to distinguish the few known species. Thus, I have not included a key but refer readers to the figures of these structures and to the remarks sections that accompany each species' description.

Paratissa coriacea (Lamb)

Figs. 20–26

Acanthonotiphila coriacea Lamb, 1912: 316.

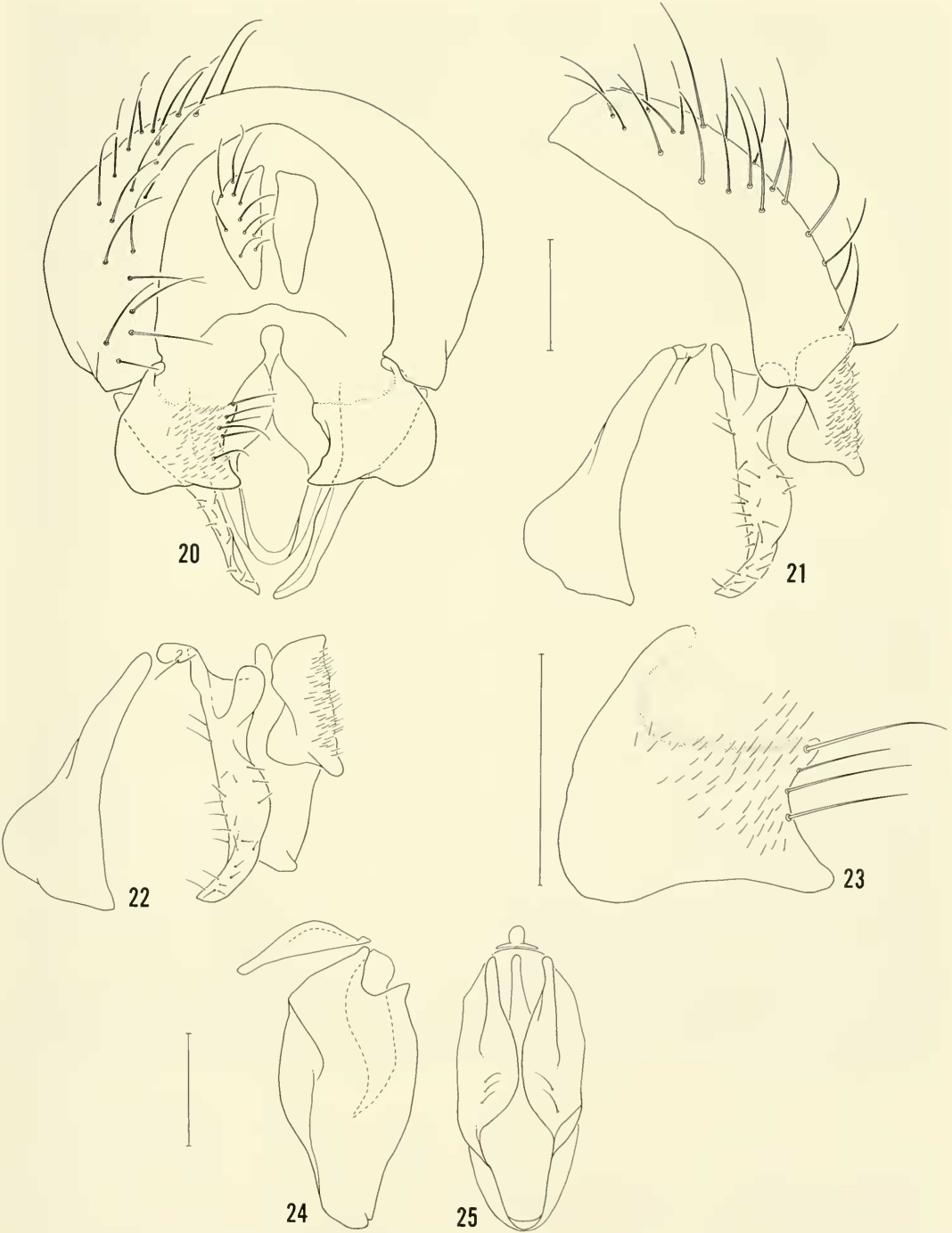
Paratissa semilutea of authors [misidentification in part].—Cogan, 1980: 658 [afrotropical catalog; synonymy of *coriacea* with *semilutea*].

Description.—Small to moderately small shore flies, body length 1.95 to 2.85 mm. As in *P. neotropica* except as follows:

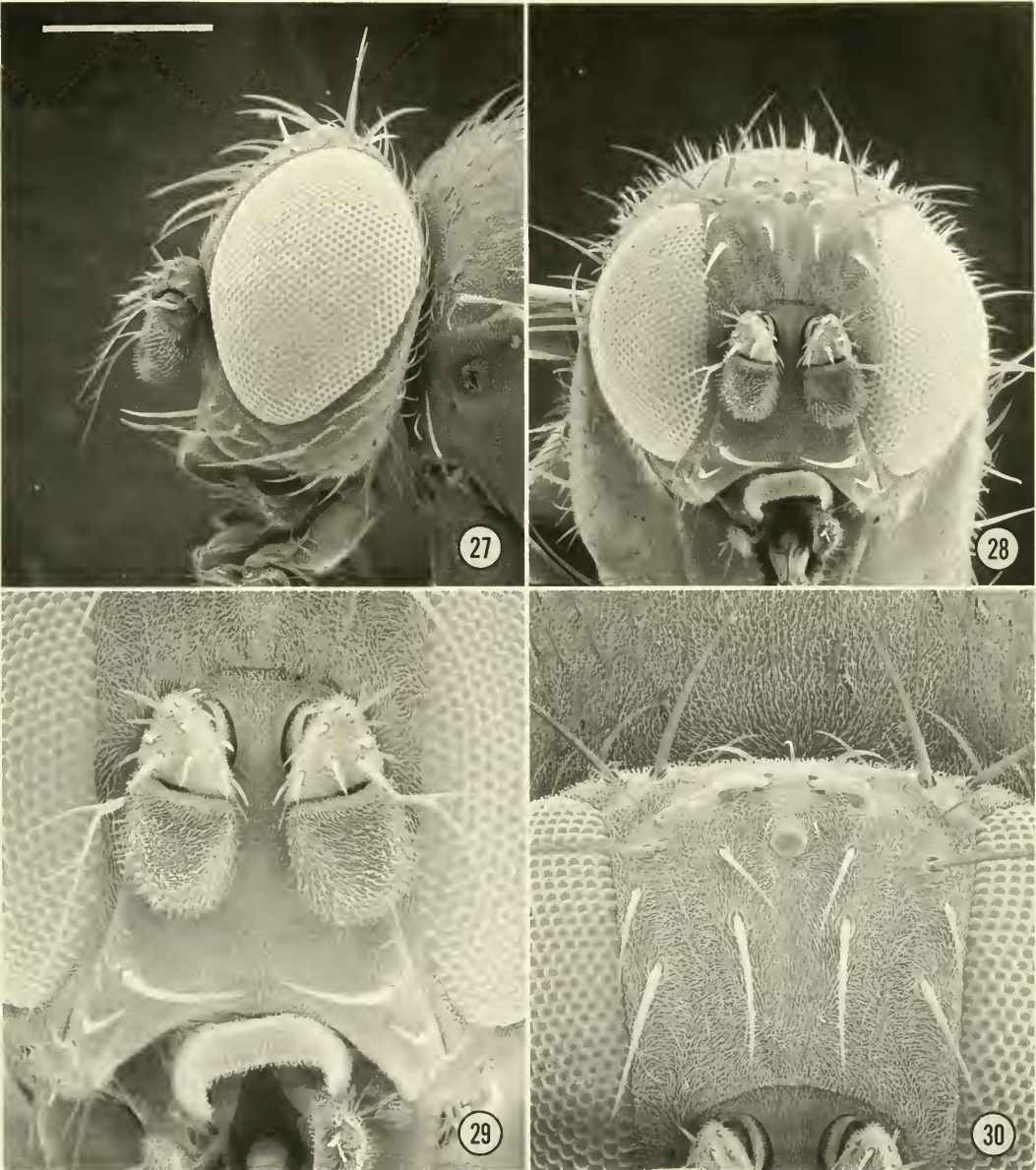
Thorax: Legs dark colored, mostly blackish, concolorous with pleuron; middle femur of male with row of 8–10 closely set short, peg-like setae along apical $\frac{1}{3}$ of posteroventral surface on a slight ridge. Wing: Costal vein ratio averaging 0.80; M vein ratio averaging 0.65.

Abdomen: Male terminalia (Figs. 20–25) as follows: epandrium (Figs. 20–21), in lateral view, more or less parallel sided, shallowly curved, in posterior view broadly rounded, widest at midlevel of cercus; cercus (Fig. 20) well sclerotized, roughly lunate, pointed dorsomedially; surstylus (Figs. 20–23), in posterior view, roughly rectangular with median margin slightly concave, setulose, laterally rounded and bare, connected with opposite surstylus by partially sclerotized ventral margin of cercal area that has a narrow, short gap at middle, in lateral view as a subrectangular process, posteroventral angle slightly produced; gonite divided, pregonite much smaller, between base of hypandrium and postgonite, with a ventrally directed short process that bears 1 setula; postgonite (Figs. 20–22) a single, long, and slender process, length greater than cercus, oriented medially from posterior view, slightly curved anteriorly subapically and pointed apically, bearing small setulae, joined with postgonite on opposite side with an arched bridge above aedeagus; aedeagus (Figs. 24–25), in lateral view, slipper shaped, in posterior view, narrowly oval; aedeagal apodeme (Fig. 24) narrowly and shallowly triangular to lunate in lateral view; hypandrium (Figs. 21–22) a broad, concave plate that is more deeply produced anteroventrally.

Type material.—The lectotype female, here designated, is labeled "Type H.T. [round label with a red border]/Mahe, '08–9. Seychelles Exp./Seychelles Is. Prof. J. S. Gardiner. 1914-537/TYPE [blue label glued to a larger one] *Acanthonotiphila coriacea*. det C.G.L. [except for the "TYPE" label, handwritten]." The lectotype is double mounted (pin mounted in a paper-covered, rectangular block of cork with the number "140" handwritten on top), is in fair condition (much of the mesonotum is partially cracked because of the large pin), and is in the BMNH. In addition to the lectotype, there are four additional females (2 with "201," 2 with "140") in the BMNH with



Figs. 20–25. Male terminalia of *Paratissa coriacea*. 20, Epandrium, cerci, surstylus, and postgonite, posterior view. 21, Epandrium, surstylus, postgonite, and hypandrium, lateral view. 22, Surstylus, postgonite, aedeagus, and hypandrium, lateral view. 23, Surstylus, posterior view. 24, Aedeagus, lateral view. 25, Aedeagus, dorsal view. Scales equal 0.1 mm (larger scale is for Fig. 23 only).

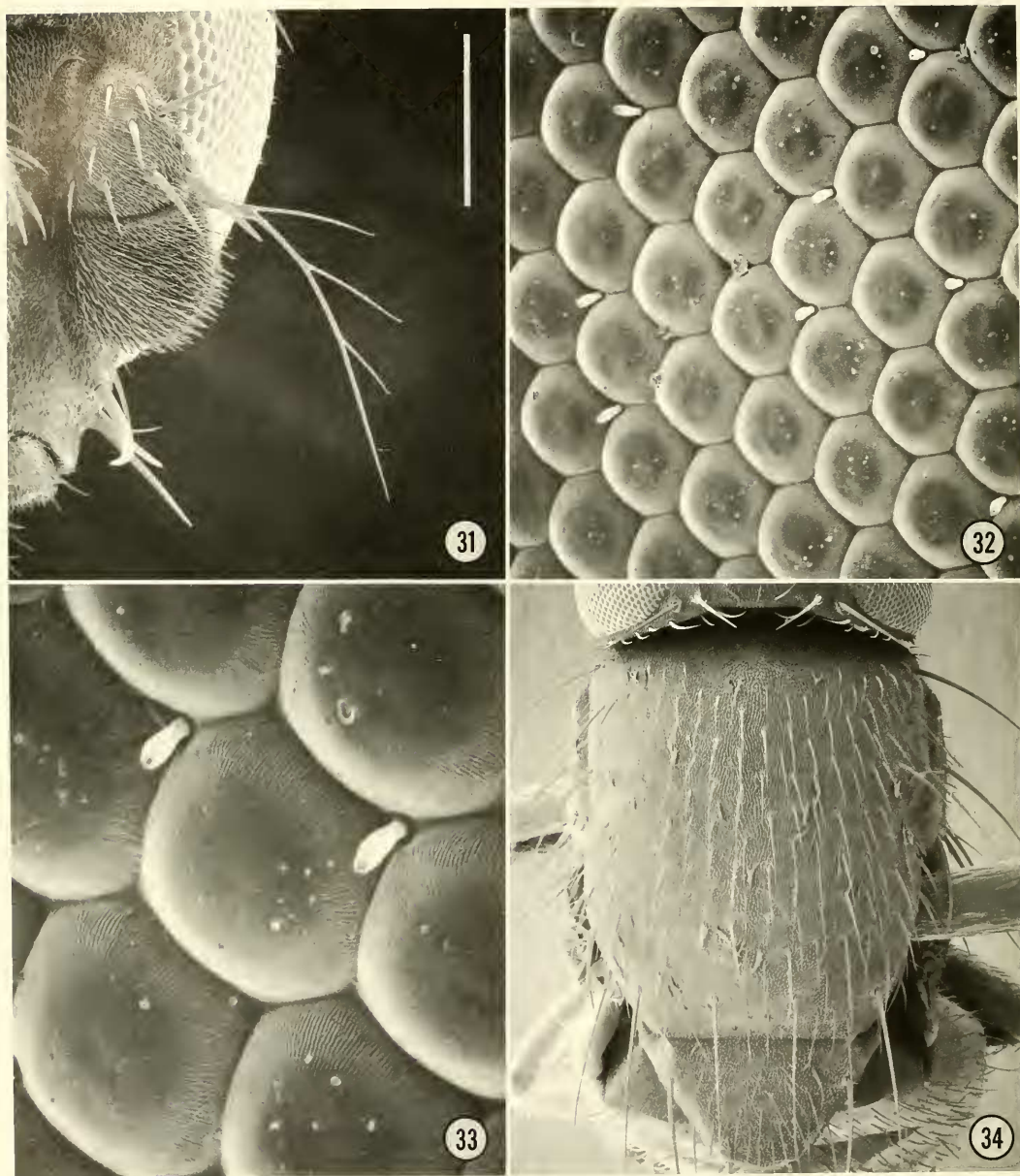


Figs. 27–30. Scanning electron micrographs of *Paratissa neotropica* (scale length in parenthesis; bar scale for all photographs = Fig. 27). 27, Head, lateral view (0.27 mm). 28, Same, anterior view (0.30 mm). 29, Face, anterior view (150 μ m). 30, Frons, anterodorsal view (150 μ m).

Wing hyaline; costal vein ratio 0.75; M vein ratio 0.65. Legs pale colored, yellowish to slightly brownish; middle femur of male with a short row of 5–7 short, peg-like setae along apical $\frac{1}{4}$ of posteroventral surface on a slightly raised ridge.

Abdomen (Figs. 39–45): Male terminalia (Figs. 41–45) as follows: epandrium (Figs.

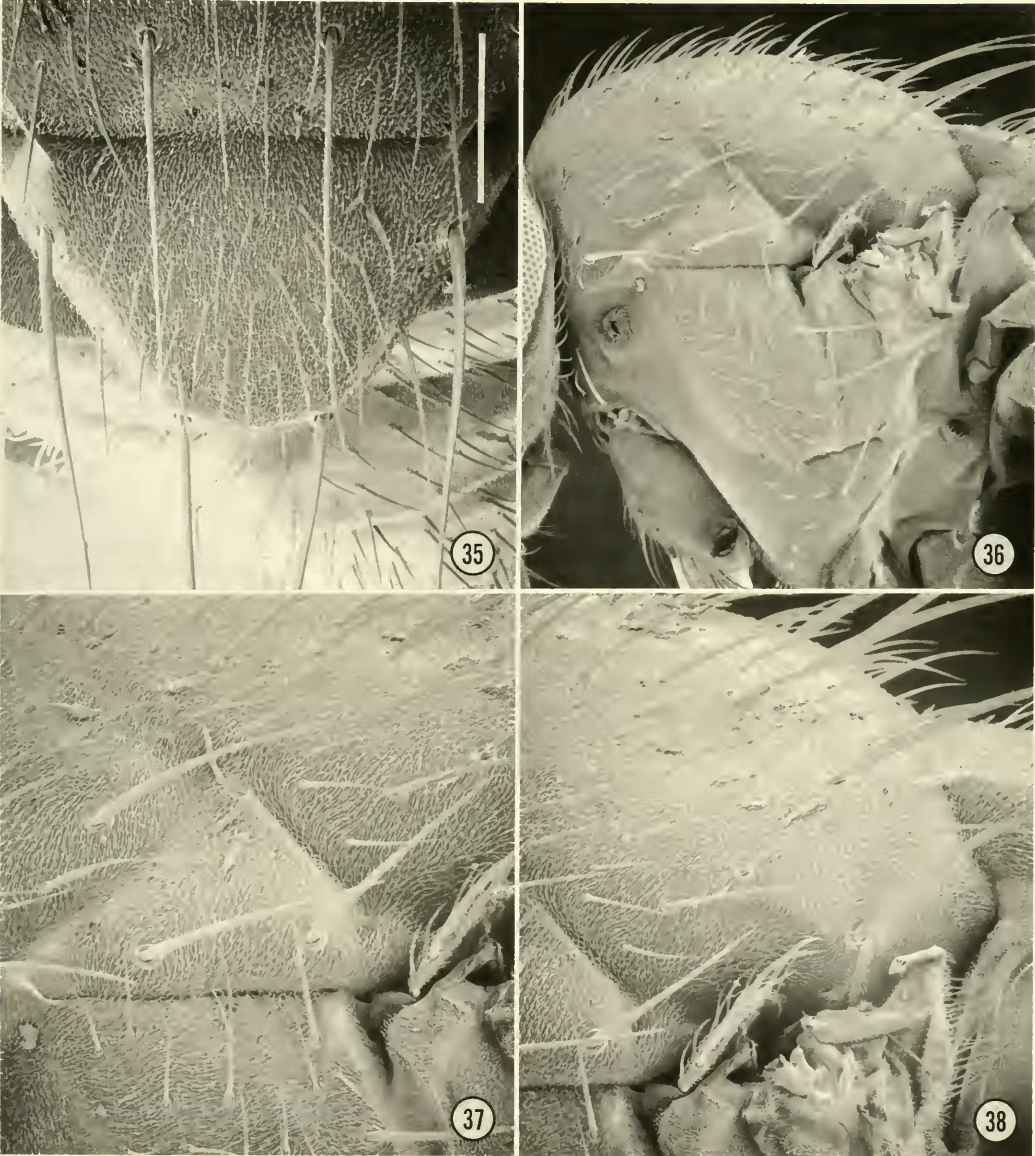
41–42), in lateral view, more or less parallel sided, gently and shallowly curved, in posterior view broadly rounded, widest at mid-level of cercus; cercus (Figs. 41–42) moderately well sclerotized, roughly lunate, pointed dorsomedially; surstylus (Figs. 41–43), in posterior view, with ventromedial projection narrowly developed, shallowly



Figs. 31–34. Scanning electron micrographs of *Paratissa neotropica* (scale length in parenthesis; bar scale for all photographs = Fig. 31). 31, Antenna, medial view (120 μm). 32, Eye, ommatidia and occasional setulae, lateral view (23.1 μm). 33, Same, enlargement (10 μm). 34, Mesonotum, dorsal view (0.33 mm).

sinuous, apex rounded; ventral spur with oblique, ventromedial orientation, forming a distinct V-shaped (angle acute) pocket between spur and posteroventral projection, surstylar spur moderately long and narrowly tapered to bluntly rounded apex; gonite

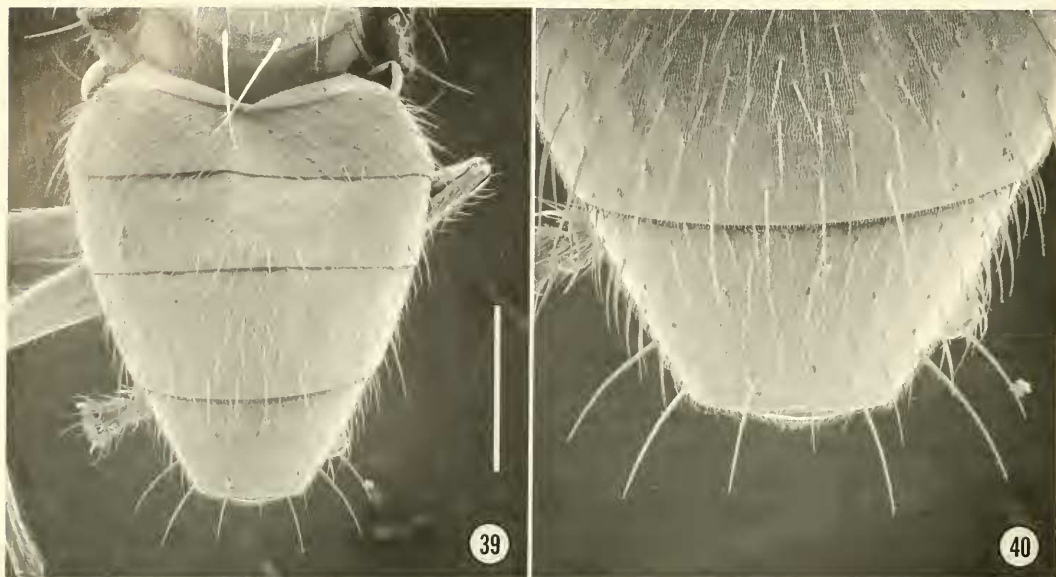
divided, pregonite much smaller, between base of hypandrium and postgonite, with a ventrally directed short process that bears 1 setula; postgonite (Fig. 42) with 2 processes, anterior process long, slender, and curved medially then posteriorly after basal



Figs. 35–38. Scanning electron micrographs of *Paratissa neotropica* (scale length in parenthesis; bar scale for all photographs = Fig. 35). 35, Scutellum, dorsal view (150 μ m). 36, Pleural area, lateral view (0.30 mm). 37, Notopleuron, lateral view (136 μ m). 38, Supra-alar and postalar area of mesonotum, lateral view (150 μ m).

$\frac{1}{3}$, basal portion thickened, bearing setulae, apical portion nearly parallel sided, lacking setulae, posterior process short, not more than twice as long as wide and bearing 2 apical setulae; aedeagus (Figs. 44–45), in lateral view, enlarged basally, tapered abruptly to form a slender apex, in dorsal view, rectangular on basal $\frac{1}{2}$ – $\frac{2}{3}$, apical corners of bas-

al portion pointed and with concave shoulders at juncture with narrow apex, apical portion abruptly narrowed, forming a slender median, parallel-sided process; aedeagal apodeme (Figs. 42, 44) slender, narrowly triangular to lunate in lateral view; hypandrium (Fig. 42) longer than wide, roughly rectangular, evenly and shallowly concave.



Figs. 39–40. Scanning electron micrographs of *Paratissa neotropica* (scale length in parenthesis; bar scale for all photographs = Fig. 39). 39, Abdomen, dorsal view (0.38 mm). 40, Fifth tergite, dorsal view (200 μ m).

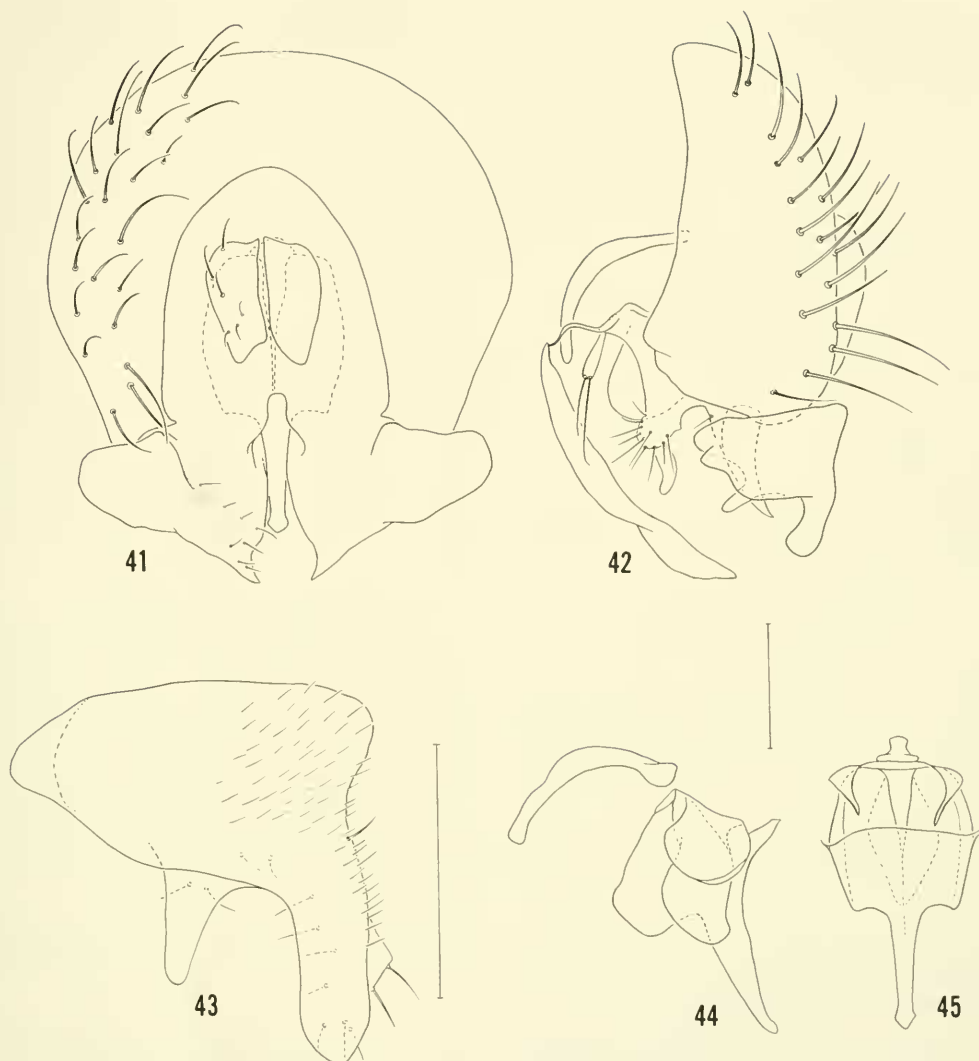
Type material. — The holotype male is labeled “BELIZE. Stann Creek District: CarrieBow Cay 21–30 Jul 1989 Wayne N. Mathis/HOLOTYPE *Paratissa neotropica* ♂ W.N.Mathis USNM [specific name and gender symbol handwritten, red].” The allotype female and 21 paratypes (8 ♂, 13 ♀) bear the same locality label data as the holotype. Other paratypes (90 ♂, 37 ♀) are from the type locality but with differing dates (15 Jan–30 Jul 1984–1990) and in some cases different collectors (R. Faitoute, C. Feller, D. Mathis, P. J. Spangler, H. B. Williams). The holotype is double mounted (minuten in a plastic block), is in excellent condition, and is deposited in the USNM.

Other specimens examined. — Neotropical: *BAHAMAS*. Crooked Island: Landrail Point, 5 Mar 1953, G. B. Rabb (2 ♂). South Bimini: May 1951, M. Cazier, W. Gertsch (1 ♂). Rum Cay: near Port Nelson, 16 Mar 1953, E. B. Hayden, L. Giovannoli (1 ♂). *BRITISH VIRGIN ISLANDS*. Barbuda: Spanish Point, 29 Apr 1958, J. F. G. Clarke (4 ♂, 1 ♀). Virgin Gorda: Prickley Pear Island, Vixen Point, 14 Apr 1956, J. F. G. Clarke (1 ♀); Prickley Pear Island (at light),

5 Apr 1958, J. F. G. Clarke (1 ♂). *MEXICO*. Quintana Roo: Nizue (seaweed), 8 Jan 1974, D. J. Pletsch (1 ♂); Xcaret, 13 Jan 1992, J. R. Vockeroth (2 ♂, 2 ♀; CNC). *PANAMA*. Darien Province: Jaque, 28 Jul 1952, F. S. Blanton (1 ♂). *WEST INDIES*. *Anguilla*. Blowing Point (18°10'30"N, 63°05'50"W), 29 Mar 1992, W. E. Steiner, J. M. Swearingen (15 ♂, 19 ♀); Long Pond Bay (18°13'00"N, 63°01'00"W), 29 Mar 1992, W. E. Steiner, J. M. Swearingen (3 ♂, 2 ♀); Sandy Ground (18°12'20"N, 63°05'30"W), 27 Mar 1992, W. E. Steiner, J. M. Swearingen (1 ♀). *Antigua*. near airport, 19 Mar 1989, A. Freidberg, W. N. Mathis (14 ♂). *St. Martin*. Cay Bay 11 Feb 1978, S. A. Marshall (2 ♂, 2 ♀; CNC).

Distribution (Fig. 46). — New World. Neotropical: Circumcaribbean: Bahamas, Belize, British Virgin Islands, Mexico (Quintana Roo), Panama, and West Indies (Anguilla, Antigua, St. Martin).

Natural history. — This is one of the most abundant shore flies occurring on the Belizean cays. The species is found in the littoral zone, especially where organic debris, usually algae and sea grass, has accumulated,



Figs. 41–45. Male terminalia of *Paratissa neotropica*. 41, Epandrium, cerci, and surstyli, posterior view. 42, Epandrium, cercus, surstylus, postgonite, and hypandrium, lateral view. 43, Surstylus, posteroventral view. 44, Aedeagus and aedeagal apodeme, lateral view. 45, Same, dorsal view. Scales equal 0.1 mm (larger scale is for Fig. 43 only).

and I found specimens to be most abundant on *Turbinaria* that had washed ashore on the west and north shores of Carrie Bow Cay.

Remarks.—I can distinguish this species from congeners only by reference to the characters of the male genitalia, especially the shape of the surstylus: surstylus (Fig. 43), in posteroventral view, with ventromedial angle acutely pointed; ventral spur

moderately long and narrow and with oblique, ventromedial orientation.

Paratissa pollinosa (Williston)
Figs. 47–50

Drosophila pollinosa Williston, 1896: 414.

Paratissa pollinosa.—Coquillett, 1900: 36 [generic combination].—Sturtevant, 1923: 10 [types lost, not in London, New York, or Kansas].—Mathis, 1989a: 643 [Aus-

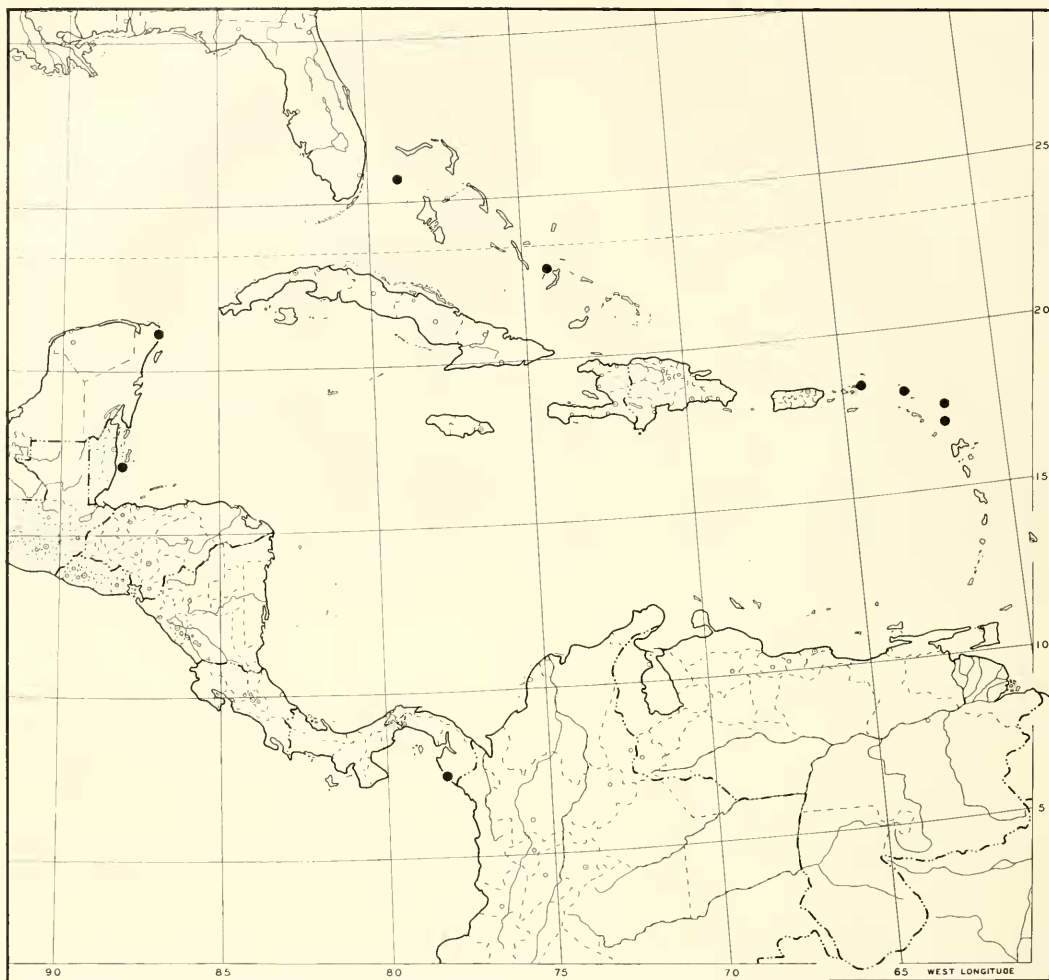


Fig. 46. Distribution map for *Paratissa neotropica*.

tralasian/oceanian catalog].—Mathis and Edmiston, 1991: 828 [review, neotype designation].

Paratissa semilutea of authors [misidentification in part].—Wirth, 1965: 740 [nearctic catalog; synonymy of *pollinosa* with *semilutea*]; 1968: 9 [neotropical catalog]; 1969: 590–593 [review of species from the Galápagos Islands].—Tenorio, 1980: 280 [review of Hawaiian species].

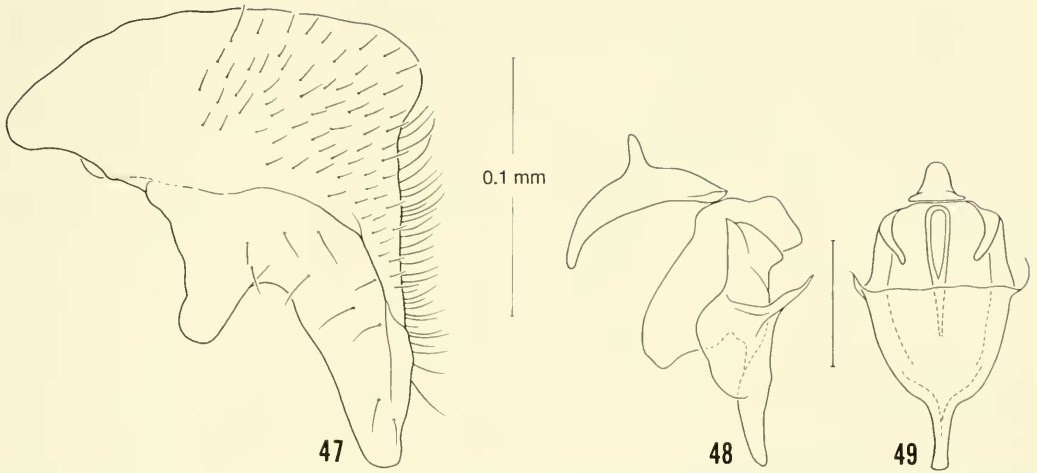
Hostis guamensis of authors [misidentification].—Adachi, 1952: 353 [list from Hawaii].—Hardy, 1952: 467 [list from Hawaii].

Description.—As in *P. neotropica* except

as follows: Small to moderately small shore flies, body length 1.80 to 2.60 mm.

Thorax: Legs generally pale colored, yellowish to brownish yellow. Costal vein ratio 0.65; M vein ratio 0.60.

Abdomen: Male terminalia (Figs. 47–49) as follows: epandrium, in lateral view, more or less parallel sided, gently and shallowly curved, in posterior view broadly rounded, widest at midlevel of cercus; cercus moderately well sclerotized, roughly lunate, pointed dorsomedially; surstylus (Fig. 47), in posterior view, with ventromedial angle acutely pointed, narrowly rounded in posteroventral view, surstyler spur with oblique,



Figs. 47–49. Male terminalia of *Paratissa pollinosa*. 47. Surstylus, posteroventral view. 48. Aedeagus and aedeagal apodeme, lateral view. 49. Same, dorsal view. Scales equal 0.1 mm (larger scale is for Fig. 47 only).

ventromedial orientation, forming a distinct V-shaped (angle acute) pocket between spur and posteroventral projection; spur moderately short and gradually tapered to bluntly rounded apex; gonite divided, pregonite much smaller, between base of hypandrium and postgonite, with a ventrally directed short process that bears 1 setula; postgonite with 2 processes, anterior process long, slender, and curved medially then posteriorly after basal $\frac{1}{3}$, basal portion thickened, bearing setulae, apical portion nearly parallel sided, lacking setulae, posterior process short, not more than twice as long as wide and bearing 2 apical setulae; aedeagus (Figs. 48–49), in lateral view, enlarged basally, tapered abruptly to form a slender apex, in dorsal view, rectangular on basal $\frac{1}{2}$ – $\frac{2}{3}$ with margins angled medially to mostly rounded shoulders at juncture with narrow apex, apical portion abruptly narrowed, forming a slender, parallel-sided, median process; aedeagal apodeme slender, narrowly triangular to lunate in lateral view; hypandrium longer than wide, roughly rectangular, evenly and shallowly concave.

Type material. — Williston, in the original description, noted “Two specimens. St. Vincent.” Sturtevant (1923) was unable to locate either after searching through collec-

tions in the BMNH, KU, and AMNH. I was likewise unsuccessful in finding any syntypes and have had to base the characterization of this species on the neotype (designated by Mathis and Edmiston, 1991: 828) that was recently collected on St. Vincent. The neotype is labeled “W.I. St. Vincent. Cumberland Bay[,] (13°16'N, 61°16'W)[,] 8–10 June 1991[,] W. N. & D. Mathis/NEO-TYPE ♂ *Drosophila pollinosa* Williston designated by W. N. Mathis & J. Edmiston [handwritten, red].” Twenty-one neopara-types (3 ♂, 18 ♀), which bear identical locality label data, were also designated. The neotype is double mounted (minuten in a block of plastic), is in excellent condition (some Laboubeniales on mesonotum), and is deposited in the USNM.

Other specimens examined. — Australian/oceanian: *PITCAIRN ISLAND GROUP*. Pitcairn Island: Adamstown (25°04'S, 130°06'W), 24 May 1987, W. N. Mathis (20 ♂, 7 ♀); Down Rope (25°04'S, 130°06'W), 25 May 1987, W. N. Mathis (♂ ♀). *UNITED STATES. Hawaii*. Oahu: Ewa (seaweed on beach), 15 Mar 1946, W. W. Wirth (1 ♂); Honolulu, 15 Jan–20 Oct 1966, 1967, J. R. Vockeroth (1 ♂, 2 ♀; CNC); Kailua Beach (reared from seaweed), 28 Nov 1969, J. A. Tenorio (2 ♀). Neotropical: *PAN-*



Fig. 50. Distribution map for *Paratissa pollinosa*.

AMA. Canal Zone: Ft. Sherman, Mojinga Swamp, Jan 1953, F. S. Blanton (15 ♂, 14 ♀). Colon Province, Galeta Point, 26 Aug 1952, F. S. Blanton (1 ♂). **WEST INDIES.** *Dominica.* Calibishie (sea shore), 27 Feb–22 Mar 1965, 1989, W. N. Mathis, W. W. Wirth (11 ♂, 2 ♀); Layou (5 km E), 23 Mar 1989, W. N. Mathis (1 ♂); Layou River (mouth), 9 Jan 1965, W. W. Wirth (1 ♂, 2 ♀); Macoucheri (sea shore), 1 Feb 1965, W. W. Wirth (1 ♂, 1 ♀); Pagua Bay, 18 Feb 1965, W. W. Wirth (1 ♂, 1 ♀); Rosalie, 23 Mar 1989, W. N. Mathis 11 ♂, 1 ♀; USNM; St. David Bay (sea shore), 23 Jan 1965, W. W. Wirth (7 ♂, 8 ♀); Woodford Hill (sea shore), 27 Feb 1965, W. W. Wirth (2 ♂). *St. Lucia.* Cas-en-bas, 14 Feb 1978, S. A. Marshall (1 ♂, 2 ♀; CNC); Micoud (13°49'N, 60°54'W), 15 Jun 1991, D. & W. N. Mathis (3 ♂, 2 ♀); Soufrière (13°51'N, 61°04'W), 11–12 Jun 1991, D. & W. N. Mathis (5 ♂, 4 ♀). *St. Vincent.* Buccament Bay, 25–28 May 1989, W. N. Mathis (2 ♂, 1 ♀).

Distribution (Fig. 50).—Neotropical: Dominica to St. Vincent, Panama, and the Galápagos Islands. Australasian/oceanian: Hawaii (Oahu and Maui) and Pitcairn Island.

Remarks.—This species and *P. semilutea* have been confused with each other almost since they were first described (see synonymy), and externally they are virtually identical. I have been able to reliably distinguish between them only by reference to charac-

ters of the male genitalia, especially the shape of the surstylus and aedeagus. These are as follows (Fig. 26): surstylus, in posterior view, with the ventromedial angle acutely pointed, narrowly rounded in posteroventral view; the ventral spur has an oblique, ventromedial orientation, forming a distinct, U-shaped pocket (angle between spur and posteroventral projection acute) between the spur and posteroventral projection; spur gradually tapered to bluntly rounded apex; and base of aedeagus, at juncture with narrow, parallel-sided apex, with sides angulate, forming a distinct shoulder on each side.

Although previously confused with *P. semilutea*, this species is most similar to *P. neotropica*, based on characters of the male terminalia, and careful comparison of these characters, the surstylus and aedeagus in particular, is needed to distinguish between them.

The occurrence of this species on Pitcairn and Hawaiian Islands is undoubtedly adventive, probably through commerce. The species has been reared from "seaweed," a product, perhaps as packing, that could easily have been introduced to these islands along with the immatures of this species.

Paratissa semilutea (Loew)

Figs. 51–54

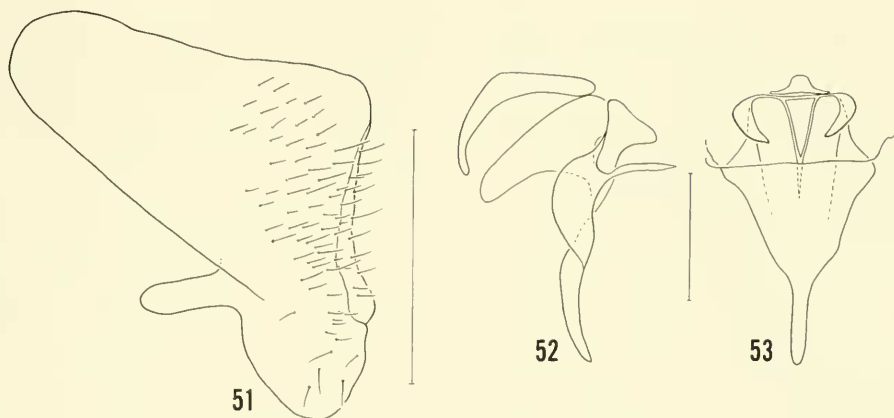
Cacoxenus semiluteus Loew, 1869: 51.

Paratissa semilutea.—Wirth, 1965: 740 [generic combination]; 1968: 9 [neotropical catalog].

Paratissa pollinosa of authors [misidentification in part].—Coquillett, 1900: 36 [list].—Sturtevant and Wheeler, 1954: 251 [review].—Wirth, 1956: 9 [list, distribution].

Description.—As in *P. neotropica* except as follows: Small to moderately small shore flies, body length 1.60 to 2.70 mm.

Thorax: Legs with femora sometimes dark colored but usually pale, yellowish; tibiae and tarsomeres mostly light reddish orange



Figs. 51–53. Male terminalia of *Paratissa semilutea*. 51, Surstylus, posteroventral view. 52, Aedeagus and aedeagal apodeme, lateral view. 53, Same, dorsal view. Scales equal 0.1 mm (larger scale is for Fig. 51 only).

to yellowish. Costal vein ratio 0.77; M vein ratio 0.61.

Abdomen: Male terminalia (Figs. 51–53) as follows: epandrium, in lateral view, more or less parallel sided, gently and shallowly curved, in posterior view broadly rounded, widest at midlevel of cercus; cercus moderately well sclerotized, roughly lunate, pointed dorsomedially; surstylus (Fig. 51), in posterior view, with ventromedial angle relatively broad, bluntly rounded, surstyler spur with oblique, ventromedial orientation, forming nearly a right angle with plane of ventromedial angle, conspicuously narrower than the latter, appearing digitiform and more or less parallel sided; gonite divided, pregonite much smaller, between base of hypandrium and postgonite, with a ventrally directed short process that bears 1 setula; postgonite with 2 processes, anterior process long, slender, and curved medially then posteriorly after basal $\frac{1}{3}$, basal portion thickened, bearing setulae, apical portion nearly parallel sided, lacking setulae, posterior process short, not more than twice as long as wide and bearing 2 apical setulae; aedeagus (Figs. 52–53), in lateral view, enlarged basally, tapered gradually to form a slender apex, in dorsal view rectangular on basal $\frac{1}{2}$ – $\frac{2}{3}$ with margins gradually tapered medially to juncture with narrow apex, api-

cal portion abruptly narrowed, forming a slender, parallel-sided, median process; aedeagal apodeme slender, narrowly triangular to lunate in lateral view; hypandrium longer than wide, roughly rectangular, evenly and shallowly concave.

Type material.—The lectotype female, here designated, is labeled “Cuba [Felipe] Poey [green on upper surface, handwritten]/Loew Coll./semiluteus [handwritten]/Type 13453 [red, number handwritten]/LECTOTYPE ♀ *Cacoxenus semiluteus* Loew by W.N.Mathis [all except “LECTOTYPE” and “By” handwritten, black submargin].” The lectotype is double mounted (glued to a paper rectangle), is in poor condition (several setae of the head and the right antenna are missing), and is deposited in the Museum of Comparative Zoology (MCZ, 13453).

Other specimens examined.—Nearctic: *BERMUDA*. Devonshire Parish: Devonshire Bay (32°18'N, 64°44'W), 29 May 1991, W. N. Mathis (7 ♂, 5 ♀). Hamilton Parish: Shelly Bay Beach (32°19'N, 64°44'W), 31 May 1991, W. N. Mathis (2 ♂, 2 ♀); Walsingham Bay (32°20'N, 64°42'W), 31 May 1991, W. N. Mathis (1 ♀). Paget Parish: Grape Bay, 11 Nov 1956, P. N. Vroom (2 ♂, 2 ♀; CNC); Hungry Bay (beach, 32°17'N, 64°45'W), 2 Jun 1991, W. N. Mathis (4 ♂,

1 ♀). Pembroke Parish: Admiralty House Beach (82°18'N, 64°48'W), 2 Jun–15 Nov 1987, 1991, D. J. Hilburn, W. N. Mathis, N. E. Woodley (26 ♂, 13 ♀); Cavendish, Jan, W. S. Brooks (2 ♂; MCZ, USNM); Hamilton, 29 Jan 1934, A. L. Melander (1 ♂, 1 ♀); Spanish Point beach (32°18'N, 64°49'W), 2 Jun 1991, W. N. Mathis (5 ♂, 1 ♀). Southampton Parish: Horseshoe Bay, 12 Nov 1956, P. N. Vroom (2 ♀; CNC). St. George's Parish: Castle Island: 25 Jan 1934, A. L. Melander (6 ♂, 4 ♀); St. George: 23 Jan 1934, A. L. Melander (6 ♂, 10 ♀); Tucker's Town Bay (beach, 32°20'N, 64°41'W), 31 May 1991, W. N. Mathis (4 ♂, 2 ♀). Warwick Parish: Warwick Long Bay Beach (32°15'N, 64°48'W), 30 May 1991, W. N. Mathis (5 ♂, 5 ♀). Cooper Island: 25 Jan 1934, A. L. Melander (15 ♂, 9 ♀). *UNITED STATES. Florida.* Broward Co., Ft. Lauderdale, 26 Jan 1933, A. L. Melander (4 ♂, 2 ♀). Dade Co., Biscayne Bay, A. Slosson (3 ♂, 4 ♀; CNC, USNM); Coconut Grove, 9 Aug 1930, P. W. Oman, R. H. Beamer (2 ♀); Cutler 30 Jan 1939, A. L. Melander (11 ♂, 27 ♀); Miami (light trap), Dec, W. W. Wirth (1 ♀). Monroe Co., Bahia Honda Key (seashore), 11 Apr 1970, W. W. Wirth (4 ♀); Bahia Vaca Key, 26 Nov 1961, J. G. Chillcott (2 ♂, 2 ♀; CNC); Big Pine Key (black light trap), 27 Dec 1972, H. R. Dodge (2 ♂); Everglades National Park, 3 Apr 1958, H. V. Weems (2 ♂); Flamingo, 25 Jan–1–2 Dec 1939, 1961, J. G. Chillcott, G. Holland, A. L. Melander, E. Munroe (3 ♂, 5 ♀; CNC, USNM); Key Largo, 26 Dec 1954, C. Weems (1 ♂); Key West (on *Flaveria linearis*), 23 Jun–25 Dec 1953, 1954, 1972, H. R. Dodge, H. V. Weems, M. R. Wheeler (6 ♂, 6 ♀); Long Key, 24 Jun 1953, A. H. Sturtevant, M. R. Wheeler (8 ♂, 2 ♀); Matecumbe, 1 Feb–31 Mar 1933, 1952, A. L. Melander, J. R. Vockeroth (15 ♂, 10 ♀; CNC, USNM); Royal Palm Park, 28 Jan 1939, A. L. Melander (1 ♂). Pinellas Co., St. Petersburg, 31 Jan–26 Mar 1924–1932, E. T. Cresson, Jr., A. L. Melander (7 ♂, 5 ♀). Little Duck Key, 1 Jan 1957, D. Lindsley (2 ♂, 2 ♀). Volucia Co., 1

Aug 1956, H. A. Denmark (1 ♂). Neotropical: *BAHAMAS.* New Providence: Nassau, 5 Apr–13 Dec 1912, 1953, E. B. Hayden, F. K. Knab (8 ♂, 9 ♀). North Bimini (light trap): Feb 1968, G. M. Stokes (2 ♂, 1 ♀). San Salvador: near Cockburn Town, 18 Mar 1953, L. Giovannoli (1 ♂). South Bimini: Jul 1951, C. and P. Vaurie (1 ♂, 9 ♀). Exuma Cays: Leaf Cay of Allens Cays, 7 Jan 1953, E. B. Hayden, L. Giovannoli (2 ♂, 1 ♀). *BE-LIZE.* Stann Creek District: Bread and Butter Cay, Mar 1988, W. N. Mathis (2 ♂, 1 ♀); Carrie Bow Cay, 15 Jan–17 May 1984–1988, R. A. Faitoute, I. C. Feller, P. J. Spangler, W. N. Mathis (22 ♂); Coco Plum Cay, Mar–Jun 1988, 1990, C. Feller, P. J. Spangler, W. N. Mathis (22 ♂); Coco Plum Cay, Mar–Jun 1988, 1990, C. Feller, W. N. Mathis, H. B. Williams (9 ♂, 25 ♀); Man of War Cay, 2 Jun–Nov 1985, 1987, 1989, W. N. & D. Mathis, H. B. Williams (26 ♂, 17 ♀); South Water Cay, Jun 1985, W. N. Mathis (1 ♂, 5 ♀); Tobacco Range, Jul 1989, W. N. Mathis, H. B. Williams (1 ♂, 14 ♀); Twin Cays (Aanderaa Flats, dock area, east shore of East Island, south end of East Island, south end of West Island, West Bay), 18 Jan–1 Jun 1985, 1987, 1988, C. Feller, W. N. Mathis (42 ♂, 57 ♀); South Water Cay, 1 Jun 1985, W. N. Mathis (1 ♂, 3 ♀). Wee Wee Cay, 24 Jan 1987, W. N. Mathis, C. Feller (2 ♀). *MEXICO.* Quintana Roo: Allen Point, Ascension Bay, 15 Apr 1960, J. F. G. Clarke (1 ♂). *WEST INDIES. Anguilla.* Blowing Point (18°10'30"N, 63°05'50"W), 29 Mar 1992, W. E. Steiner, J. M. Swearingen (3 ♂, 2 ♀). *Antigua.* near airport, 19 Mar 1989, A. Freidberg, W. N. Mathis (5 ♂). *Cuba.* Havana Province: Jibacoa Beach (57 km E Havana), 26 Apr 1983, W. N. Mathis (11 ♂, 12 ♀). Matanzas Province: Playa Larga, 1 May 1983, W. N. Mathis (2 ♂, 2 ♀). *Jamaica.* Falmouth (bay shore), 1 Mar 1969, W. W. Wirth (6 ♂, 6 ♀). *Puerto Rico.* Guanica, 22 Jun 1952, F. S. Blanton (1 ♀). *St. Martin.* Paradise Peak, 11 Feb 1978, S. A. Marshall (3 ♂, 2 ♀; CNC). *Virgin Islands.* St. Croix: airport (at light), fall 1967, W. H. Pierce (1



Fig. 54. Distribution map for *Paratissa semilutea*.

♂. St. John: Francis Bay (at light), 25 Mar 1958, J. F. G. Clarke (4 ♀). St. Thomas: Charlotte Amalie (3 mi from, on grass), 31 May 1917, H. Morrison (1 ♂). Pueblito del Rio (at light), 1 Aug 1963, P. J. Spangler (1 ♂).

Distribution (Fig. 54).—New World. United States (Florida) to Mexico (Quintana Roo), east to Bermuda and south to the Bahamas and West Indies (Anguilla, Antigua, Cuba, Jamaica, Puerto Rico, St. Martin, and Virgin Islands), and Belize.

Remarks.—My concept of this species is based primarily on the series, especially the males, that I collected in the province of Havana, Cuba (see specimens examined). So far as I am aware, there is only one species of *Paratissa* on Cuba, and I am assuming that the lectotype and specimens of this

series are conspecific. The lectotype, which I have examined, was collected by Professor Felipe Poey, undoubtedly in or near Havana, and was probably given to Baron R. Osten Sacken during the winter of 1857–58 when the latter spent five weeks in Cuba and became acquainted with Professor Poey.

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